

JOB SHEET 2-3-30 LINEAR MOTION ESTIMATE FUNCTION

INTRODUCTION

This function displays a **PUP** calculated linear motion estimate for a selected echo feature given input from the PUP operator. In addition, an estimated "linear motion" of the storm's direction and speed is displayed on the feedback line. **Note that any action resulting in a PUP response on the feedback line, such as RECENTER MAG, will over-write the storm's direction and speed on the feedback line. A HARDCOPY command retains the linear motion feedback data on the hardcopy.** The linear motion display is similar to the Storm Track Overlay and projects the echo motion up to one hour from the current location. The display also shows the current location of the echo and the projected location and time, in fifteen minute increments.

There is no Graphic Tablet Box for this feature. This particular function is referred to as an *implied* function. This means that anytime the 3-step process listed below is followed, the function will be activated.

OBJECTIVE

Use the Graphic Tablet and this 3-step process to estimate the speed and direction of a specified feature using the linear motion estimate function.

REFERENCES

NWS EHB 6-531-1, USERS GUIDE: PUP/RPGOP, Sections 4.13.1 and 4.13.2

PROCEDURE

Graphic Tablet

1. a. Select a product of your choice.
- b. Place the cursor on any feature of interest, and press the appropriate puck button. This defines one of the two points from which the linear motion calculation is based.

Note: It may be helpful to magnify the point of interest as this allows you to pinpoint the echo feature of interest.

GRAPHIC TABLET

KEYBOARD																SYMBOLS																USER FUNCTIONS									
EDIT COMMANDS	EDIT ANNOT	EDIT ALERT AREA	DELETE ALERT BOX	ADD ALERT BOX	DEL RCTL	ADD RCTL		EDIT RCM PART A	EDIT RCM PART C	57 25	58 26	59 27	60 28	61 29	62 30	63 31	64 32	26	27	28	29	30																			
	EDIT MAP	HIGH DETAIL	1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9) 0	+ =	BACK SPACE	51 19	52 20	53 21	54 22	55 23	56 24	21	22	23	24	25																
	START ERASE	END ERASE	Q	W	E	R	T	Y	U	I	O	P	-	RET	45 13	46 14	47 15	48 16	49 17	50 18	16	17	18	19	20																
	START LINE	END LINE	A	S	D	F	G	H	J	K	L	:	;	UPPER SHIFT	39 7	40 8	41 9	42 10	43 11	44 12	11	12	13	14	15																
	CANCEL EDIT	EXIT EDIT & SAVE	Z	X	C	V	B	N	M	<	>	?	/	SPACE	33 1	34 2	35 3	36 4	37 5	38 6	6	7	8	9	10																
PARAMETERS	AZRAN SELECT	<div><div><div>⊕ — 1b</div><div>1a</div><div>↓</div></div></div>																UF1					2	3	4	5															
	CROSS SECTION SELECT																	CANCEL UF	SPEED DOWN	SPEED UP	FRAME BACK	FRAME FORWARD																			
	RPG																	TIME LAPSE RESHLT	TIME LAPSE 1	TIME LAPSE 2	TIME LAPSE 3	CONTINUOUS LOOP																			
	TIME																	AUTO RESHLT	QUAD 1	QUAD 2	RECENTER MAG 1X	RECENTER MAG 2X																			
	DATE																	FULL SCREEN	QUAD 3	QUAD 4	RECENTER MAG 4X	RECENTER MAG 8X																			
	REPEAT COUNT																	CLEAR SCREEN/ QUAD	FILTER	COMBINE DOWN	COMBINE UP	CURSOR HOME DEFINE																			
	END HOUR																	BLINK COLOR LEVEL	RESTORE DISPLAYED PRODUCT	GRAY/COLOR SCALE	CURSOR AUTO/ MANUAL	CURSOR LINK/UNLINK																			
	SLICE/ DURATION																	ALL QUADRANTS	HARD COPY	PRESET CENTER	CURSOR HOME	AZRAN R/ LAT LOW AZRAN H																			
	CENTER AZIMUTH																	ACK ALERT	CELL TRENDS	VR/SHEAR DISPLAY	CURRENT CROSS SECTION CR	ANNOT'S AN																			
	CENTER RANGE																	HAIL	MESO	TVS	STORM TRACK	ATTRIBUTE AT																			
	STORM DIRECTION																	ALERT AREA 1	ALERT AREA 2	SWP	COMBINED SHEAR CONTOUR SC																				
	STORM SPEED																	OVERLAYS OFF/ON	OVERLAYS ERASE	MAP OVERLAY DELETE	STOP BLINK	PAGE ATTRIBUTE																			
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ELEVATION UP		LOW PRIORITY	DISPLAY PRODUCT	BASE REF R	COMP REF CR	COMP REF CONTOUR CRC	ECHO TOPS COUNT/ETC	REF CROSS SECTION RCS	ACK PRODUCT	DISPLAY QUEUED PRODUCT	PRODUCT OFF/ON	MAPS OFF/ON	MAPS ERASE	MAPS FOREG/ BACKG	CANCEL HELP																										
ELEVATION DOWN	REQUEST MAPS	BASE VEL V		STM REL VEL REGION SRR	STM REL VEL MAP SRM	ECHO TOPS ET	VEL CROSS SECTION VCS	PRODUCT BACK	PRODUCT FORWARD	TRANSFER SCREEN PRODUCT	STATE LAT/LON ST	COUNTY CO	HIGHWAY HY	RADAR SITES RS																											
LOWEST ELEVATION	BLANK TIME DATE	SEND RPG REQ	BASE SPECTRUM WIDTH SW	COMBINED SHEAR CS	COMBINED SHEAR CONTOUR CSC	COMBINED MOMENT CM	SPECTRUM WIDTH CROSS SECTION SCS	NEXRAD UNIT STATUS	CLEAR QUEUE	REDISPLAY LAST PRODUCT	RIVER RV	RIVER BASIN RB	RDA	RANGE RING																											
DED ASSOC RPG	.13 NM	8 LEVEL	ONE HOUR PRECIP OHP	THREE HOUR PRECIP THP	STORM TOTAL PRECIP STP	USER SELECTABLE PRECIP USP	STORM TRACK STI	TORNADO VORTEX SIGNATURE TVS	RADAR CODED MESSAGE RCM	ALL SWA PRODUCTS	WARNING AREA WA	MIL OPN AREA MO	POLAR GRID	LFM GRID LF																											
DIAL-UP ASSOC RPG	.27 NM	16 LEVEL	MESO M	SEVERE WEATHER PROBABILITY SWP	WEAK ECHO REGION WER	VERTICALLY INTEGRATED LIQUID VIL	VELOCITY AZIMUTH DISPLAY VAD	HAIL HI	SWA REF SWR	SWA VEL/SRR SWW/SWR	RSTRCTD AREA RA	PRHBDT AREA PA	AIRWAY HIGH AH	CITY CI																											
RPG 1	.54 NM	HIGH ALT	LAYER COMP REF MAX LRM	LAYER COMP TURB MAX LTM	LAYER COMP REF AVG LRA	LAYER COMP TURB AVG LTA	VAD WIND PROFILE VVP		SWA SPECTRUM WIDTH SWW	SWA SHEAR SWS	NAVAID NA	AIRPORT AP	AIRWAY LOW AL	COUNTY NAMES CN																											
RPG 2	1.1 NM	MID ALT																																							
RPG 3	2.2 NM	LOW ALT																																							
PARAMETERS			PRODUCTS							BACKGROUND MAPS																															

DISPLAY FUNCTIONS

PRODUCT OVERLAYS

2. Select "PRODUCT FORWARD" or "PRODUCT BACK" until you arrive at the appropriate product time to be used for selecting the second point for computing the linear motion.
 - Note that too short a time period may result in an inaccurate estimate of motion and too long of a time between products could make it difficult to locate the same feature.
3. Use the puck to re-select the same echo feature. This defines the second location for the linear motion calculation.
4. Note the immediate display of the linear motion
 - The PUP immediately displays the linear motion estimate overlay based on these two selected cursor positions. The display indicates the "*past location*" with the letter "**P**", the "*current location*" with the letter "**C**", and four estimated future locations out to an hour. The future locations at 15 minute intervals are labeled with the actual clock time the echo will be at that location. In addition, an estimated direction and speed is displayed on the feedback line.
 - The linear motion overlay is automatically saved as an annotation to the product last used to select a point. More than one linear motion estimate may be selected for a product.

ADDITIONAL INFORMATION

It should be noted that the selection of the time interval has a significant effect on the linear motion estimate. If we assume the feature has true linear motion, the smaller the time interval between the two products, the greater the potential for error when it is extrapolated out to a 60 minute future position. Therefore, whenever possible, use a greater interval between products by selecting "PRODUCT FORWARD/BACK" more than just once.

The sequence of the linear motion estimate is very important. Anytime the sequence (select point...product forward/back...select point) is done, the linear motion estimate is run. For example, just after you select a point over a storm, to see how far it is from a city, you notice that a later version of that product has just come in. You product forward and select a point on the same storm. That's right, whether you want it or not the linear motion estimate function will run and you will get the overlay.

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DISPLAY FUNCTIONS

PRODUCT OVERLAYS

ADDITIONAL INFORMATION

It is recommended that you start with a past product and then product forward when using this function. This proceeedure eliminates any confusion when using the 60 minute forecast track.

There is a maximum linear speed of 200 knots. If this is exceeded, the feedback line with display **LINEAR MOTION: MAX SPEED EXCEEDED.**

END